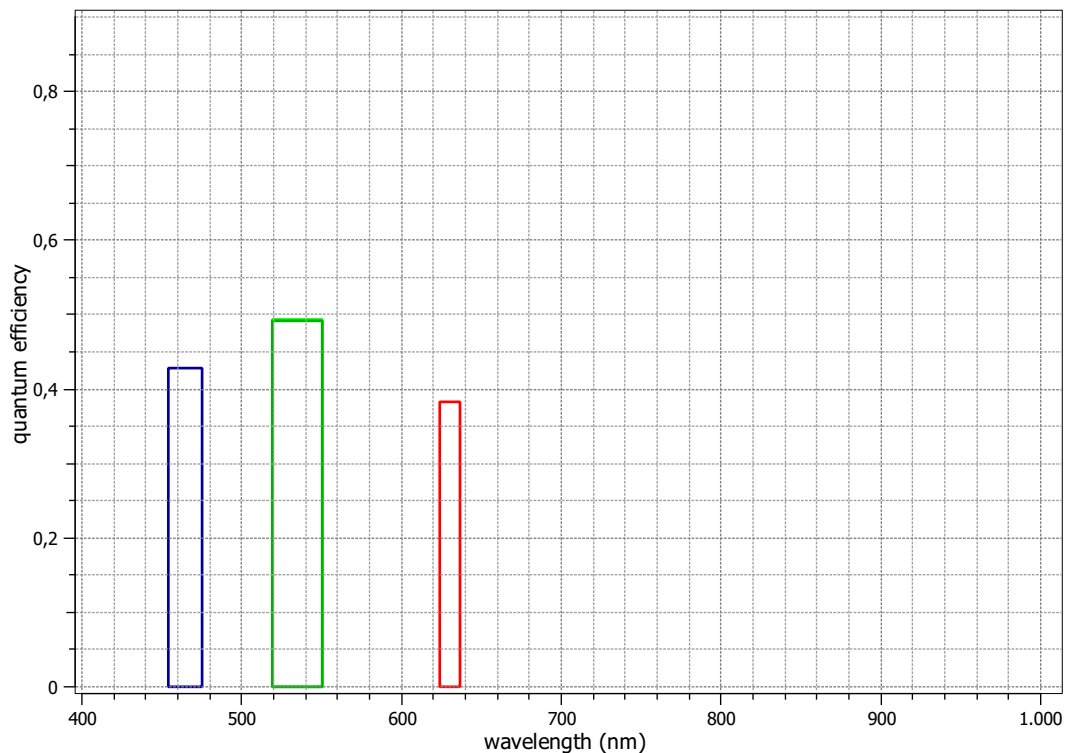


EMVA 1288 Summary Sheet

This datasheet describes the specification according to the standard 1288 release 3.1 for "Characterization and Presentation of Specification Data for Image Sensors and Cameras" issued on December 30, 2016 by the European Machine Vision Association (EMVA), published at www.standard1288.org and the *zenodo EMVA 1288 community* with proprietary extensions from AEON. The measurements were performed with the AEON ACC3 RGB Release 7, 21.08.2018, SN 0001(Baumer).

Measurements performed by Technical and Application Support Center, Baumer Optronic GmbH.

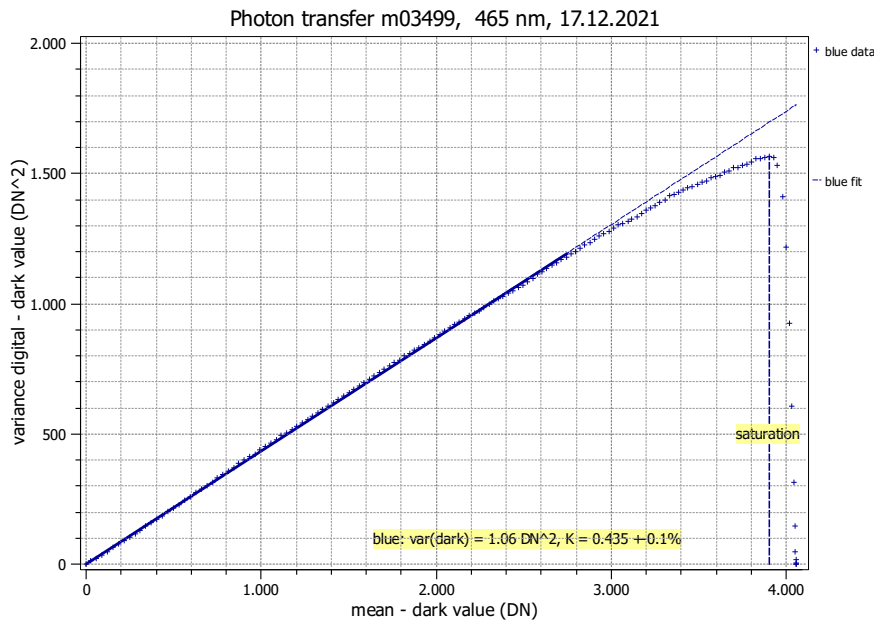
| | | | |
|------------------|------------------------|-------------------------------|------------|
| Vendor | Baumer | Type of data presented | Single |
| Model | VCXG-127C.I | Operation point 1 | |
| Serial number | 700007510049 | Wavelength centroid | 464.6 nm |
| Sensor diagonal | 13.90 mm | Wavelength FWHM | 20.6 nm |
| Lens category | C-Mount | Gain, black-level | 1.0 / 39.0 |
| Resolution | 4096 × 2992, 12 bit | Operation point 2 | |
| Pixel size (h×v) | 2.74 μm × 2.74 μm | Wavelength centroid | 534.9 nm |
| Sensor | Sony IMX545 | Wavelength FWHM | 31.8 nm |
| Sensor type | CMOS | Gain, black-level | 1.0 / 39.0 |
| Shutter type | Global shutter | Operation point 3 | |
| Overlap cap. | Overlapped | Wavelength centroid | 630.5 nm |
| Max. frame rate | 0.0 Hz | Wavelength FWHM | 12.9 nm |
| Interface type | GEV | Gain, black-level | 1.0 / 39.0 |
| | | Optional data measured | |
| | | None | |



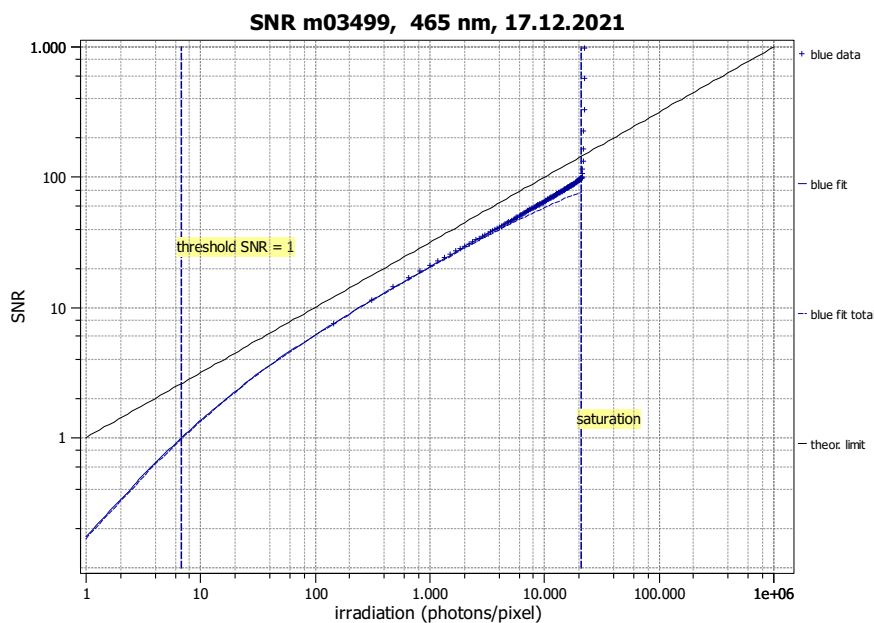
Summary Sheet for Operation Point 1 at a Wavelength of 465 nm

| | | | |
|--------------------|----------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 1.0 / 39.0 |
| Exposure control | By irradiance | Environmental temperature | 24.9°C |
| Exposure time | 812.00 μ s | Camera body temperature | 28.5°C |
| Frame rate | 10.0 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12 | Wavelength, centr., FWHM | 465 nm, 20.6 nm |

Photon Transfer



Signal-to-Noise Ratio



Quantum efficiency

η 42.8%

Overall system gain

K 0.435 DN/e⁻

$1/K$ 2.300 e⁻/DN

Temporal dark noise

σ_d 2.28 e⁻

$\sigma_{y,\text{dark}}$ 1.03 DN

Signal-to-noise ratio

SNR_{max} 95

39.5 dB

6.6 bit

$1/\text{SNR}_{\text{max}}$ 1.05 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 6.83 p

$\mu_{p,\text{min,area}}$ 0.910 p/ μm^2

$\mu_{e,\text{min}}$ 2.92 e⁻

$\mu_{e,\text{min,area}}$ 0.389 e⁻/ μm^2

Saturation capacity

$\mu_{p,\text{sat}}$ 21001 p

$\mu_{p,\text{sat,area}}$ 2797 p/ μm^2

$\mu_{e,\text{sat}}$ 8988 e⁻

$\mu_{e,\text{sat,area}}$ 1197 e⁻/ μm^2

Dynamic range

DR 3075

69.8 dB

11.6 bit

Spatial nonuniformities

DSNU₁₂₈₈ 0.62 e⁻

0.27 DN

PRNU₁₂₈₈ 0.76 %

Linearity error

LE_{min} -0.18%

LE_{max} 0.42%

Dark current

$\mu_{c,\text{mean}}$ 0.1 \pm 0.0 e⁻/s

0.03 DN/s

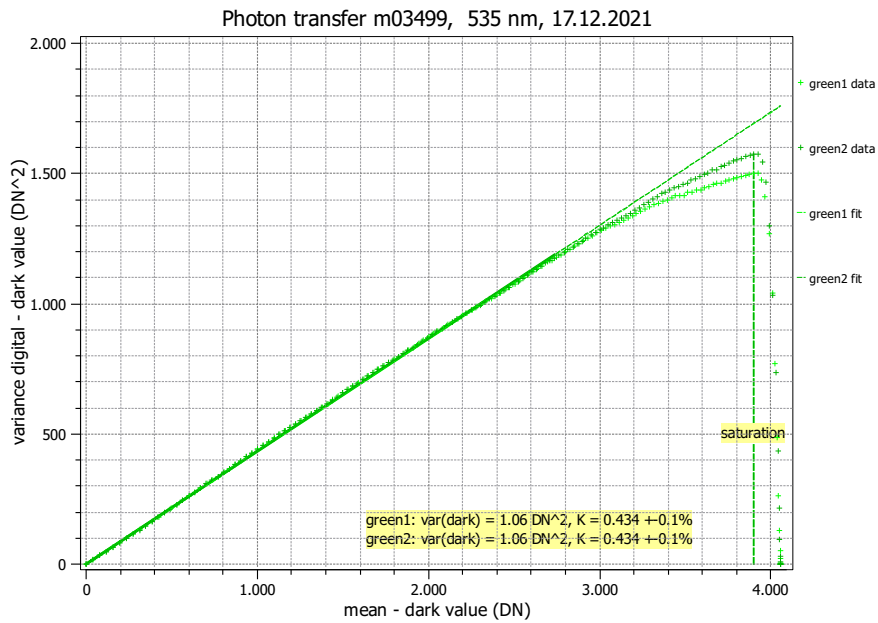
$\mu_{c,\text{var}}$ 3.1 \pm 0.2 e⁻/s

T_d — °C

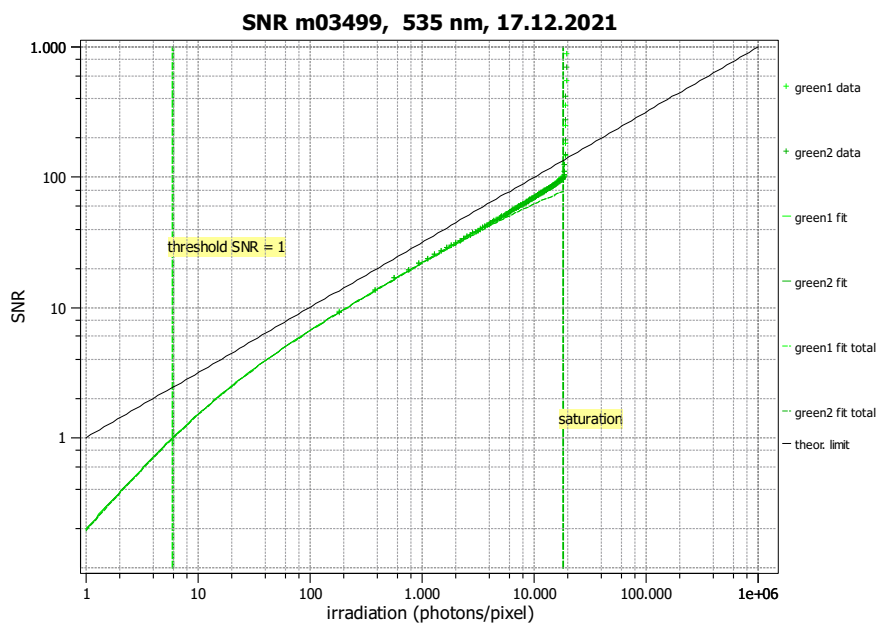
Summary Sheet for Operation Point 2 at a Wavelength of 535 nm

| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 1.0 / 39.0 |
| Exposure control | By irradiance | Environmental temperature | 25.3°C |
| Exposure time | 1.59 ms | Camera body temperature | 28.7°C |
| Frame rate | 10.0 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12 | Wavelength, centr., FWHM | 535 nm, 31.8 nm |

Photon Transfer



Signal-to-Noise Ratio



Quantum efficiency

η 49.3%

Overall system gain

K 0.434 DN/e⁻

$1/K$ 2.305 e⁻/DN

Temporal dark noise

σ_d 2.28 e⁻

$\sigma_{y,\text{dark}}$ 1.03 DN

Signal-to-noise ratio

SNR_{max} 95

39.5 dB

6.6 bit

$1/\text{SNR}_{\text{max}}$ 1.05 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 5.93 p

$\mu_{p,\text{min,area}}$ 0.790 p/μm²

$\mu_{e,\text{min}}$ 2.92 e⁻

$\mu_{e,\text{min,area}}$ 0.389 e⁻/μm²

Saturation capacity

$\mu_{p,\text{sat}}$ 18254 p

$\mu_{p,\text{sat,area}}$ 2431 p/μm²

$\mu_{e,\text{sat}}$ 8999 e⁻

$\mu_{e,\text{sat,area}}$ 1199 e⁻/μm²

Dynamic range

DR 3079

69.8 dB

11.6 bit

Spatial nonuniformities

DSNU₁₂₈₈ 0.52 e⁻

0.23 DN

PRNU₁₂₈₈ 0.74 %

Linearity error

LE_{min} -0.35%

LE_{max} 0.93%

Dark current

$\mu_{c,\text{mean}}$ 0.1 ± 0.0 e⁻/s

0.04 DN/s

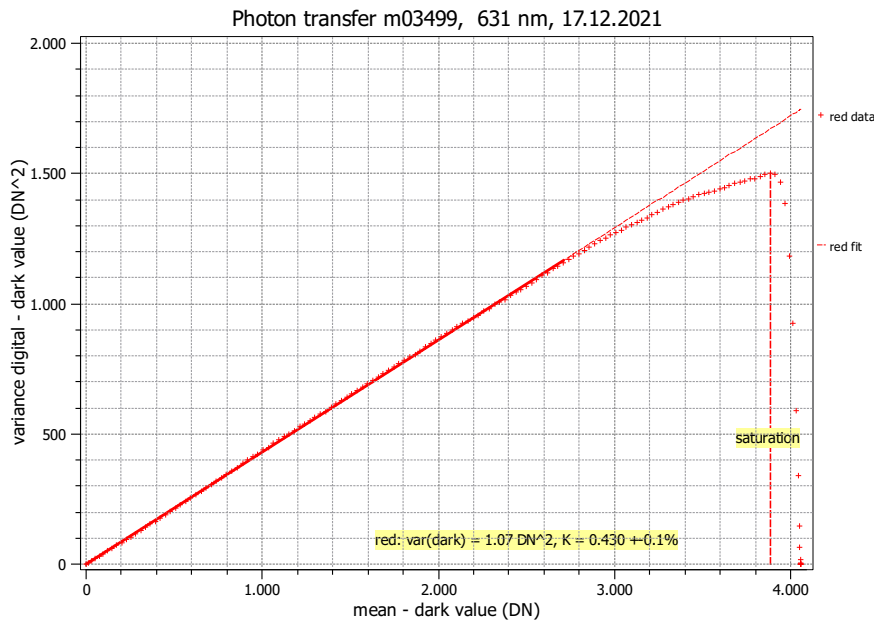
$\mu_{c,\text{var}}$ 3.1 ± 0.2 e⁻/s

T_d — °C

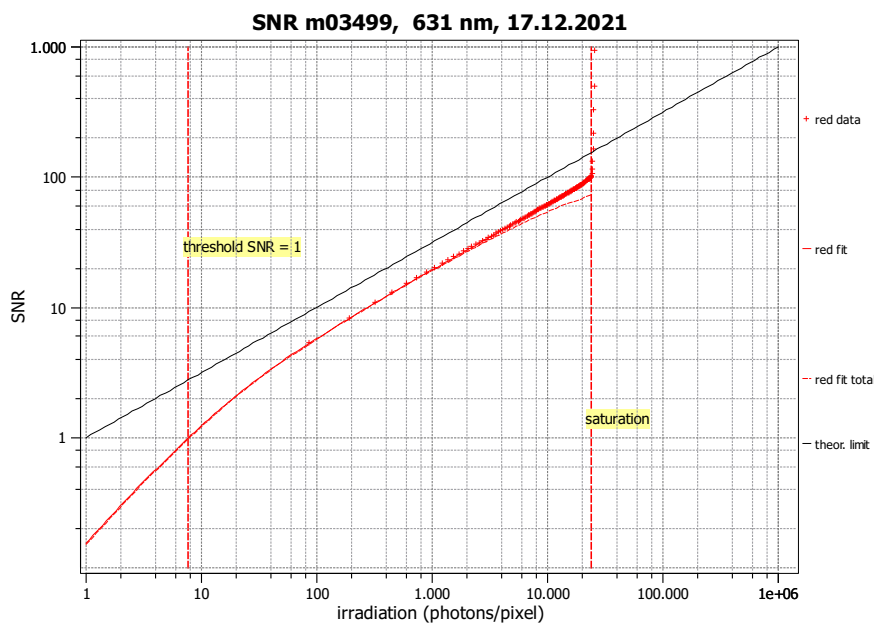
Summary Sheet for Operation Point 3 at a Wavelength of 631 nm

| | | | |
|--------------------|---------------|---------------------------|-----------------|
| Type of data | Single | Gain, black-level | 1.0 / 39.0 |
| Exposure control | By irradiance | Environmental temperature | 25.4 °C |
| Exposure time | 1.59 ms | Camera body temperature | 28.8 °C |
| Frame rate | 10.0 Hz | Internal temperature(s) | — |
| Data transfer mode | BayerRG12 | Wavelength, centr., FWHM | 631 nm, 12.9 nm |

Photon Transfer



Signal-to-Noise Ratio



Quantum efficiency

η 38.3%

Overall system gain

K 0.430 DN/e⁻

$1/K$ 2.323 e⁻/DN

Temporal dark noise

σ_d 2.31 e⁻

$\sigma_{y,\text{dark}}$ 1.03 DN

Signal-to-noise ratio

SNR_{max} 95

39.6 dB

6.6 bit

$1/\text{SNR}_{\text{max}}$ 1.05 %

Absolute sensitivity threshold

$\mu_{p,\text{min}}$ 7.71 p

$\mu_{p,\text{min,area}}$ 1.026 p/μm²

$\mu_{e,\text{min}}$ 2.95 e⁻

$\mu_{e,\text{min,area}}$ 0.393 e⁻/μm²

Saturation capacity

$\mu_{p,\text{sat}}$ 23723 p

$\mu_{p,\text{sat,area}}$ 3160 p/μm²

$\mu_{e,\text{sat}}$ 9092 e⁻

$\mu_{e,\text{sat,area}}$ 1211 e⁻/μm²

Dynamic range

DR 3079

69.8 dB

11.6 bit

Spatial nonuniformities

DSNU₁₂₈₈ 0.58 e⁻

0.25 DN

PRNU₁₂₈₈ 0.89 %

Linearity error

LE_{min} -0.42%

LE_{max} 0.16%

Dark current

$\mu_{c,\text{mean}}$ 0.1 ± 0.0 e⁻/s

0.02 DN/s

$\mu_{c,\text{var}}$ 3.0 ± 0.2 e⁻/s

T_d — °C